APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/638,271	08/14/2000	Dinesh Nair	5150-43600	9604

			EXAMINER
35690	7590	06/04/2004	BURLESON, MICHAEL L

MEYERTONS, HOOD, KIVLIN, KOWERT & GOETZEL, P.C.
P.O. BOX 398
AUSTIN, TX 78767-0398

ART UNIT	PAPER NUMBER
2626	

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.		Applicant(s)
Office Action Summary	09/638,271		NAIR ET AL.
	Examiner		Art Unit
	Michael Burleson		2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-48* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3,14-18,23,25-28,35-40 and 44-47* is/are rejected.

7) ☒ Claim(s) *4-13,19-22,24,29-34,41-43 and 48* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2,5,6</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement (IDS) submitted was 08/14/2000. The

submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the

information disclosure statement is being considered by the examiner.

Claim Objections

1.   Claims 6 and 8 are objected to because of the following informalities: "analyses"

should read, -- analysis --. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

> only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1,14,25,26,38-40,46 and 47 are rejected under 35 U.S.C. 102(e) as being

anticipated by Sonoda et al. US 6115494.

3.   Regarding claim 1, Sonoda et al. teaches of an image processing device that

implements the processing method (column 10, lines 18-20). He teaches of a pattern

that is provided in a given location on the document to be detected (column 7, lines 53-

55). A determination is made as to whether pattern (1) can be found in image data

(column 8, lines 53-58). Pattern (1) is composed of a number of marks (2) in the image

and determines their locations. The density of one of the three color component signals

constituting the marks will be higher than that of the other two. By executing threshold

processing in the image signals with respect to this color component signal and

binarizing the image data, we can extract marks (2) and recognize the pattern (column

8, lines 37-44). He also teaches of executing pattern recognition using a single color

component signal and then determine, whether the pattern is the specified color

(column 8, lines 46-50). This reads on a computer-implemented method for locating

regions of a target image that match a template image with respect to color and pattern

information, the method comprising: performing a color matching search through the

target image in order to find one or more candidate color match regions, wherein the

candidate color match color regions match the template image with respect to color

information; for each candidate color match region found in the color matching search,

performing a pattern matching search of a proximal region proximal to the color match

region in order to find one or more match regions in the target image; wherein the one

or more match regions found in the pattern matching search of each proximal region match the template image with respect to color and pattern information.

4.   Regarding claim 14, Sonoda et al. teaches that the image processing device is employed in a copier, scanner or printer (column 7, lines 48-52), which reads on the target image is received from one of the group consisting of: a memory medium, a hardware device and a software application.

5.   Regarding claim 25, Sonoda et al. teaches of a pattern that is provided in a given location on the document to be detected (column 7, lines 53-55), which reads on each of the proximal regions surrounds it's respective color match region.

6.   Regarding claim 26, Sonoda et al. teaches of an image processing device (10) (figure 5), which reads on a system for locating regions of a target image that match a template image with respect to color and pattern information, the system comprising: a processor. Sonoda et al. teaches that the image processing device (10) implements the processing method (column 10, lines 18-20), which reads on a color/pattern matching software. It is inherent in the above recited prior art that a memory medium coupled to the processor, wherein the memory medium stores color/pattern matching software.

7.   Regarding claim 38, claim 38 is rejected for the same reasons as claim 26.

8.   Regarding claim 39, claim 39 is rejected for the same reasons as claim 27.

9.   Regarding claim 40, claim 40 is rejected for the same reasons as claim 28.

10.   Regarding claim 46, Sonoda et al. teaches of an image processing device that implements the processing method (column 10, lines 18-20). He teaches about pattern recognition and using a single color component signal to determine whether the pattern

is the specified color and finding the logical product of these two processes (column 8, lines 58-65), which reads on a computer-implemented method for locating regions of a target image that match a template image with respect to color and pattern information, the method comprising: performing a color matching search through the target image in order to find one or more color match regions, wherein the one or more color match color regions match the template image with respect to color information; performing a pattern matching search through the target image in order to find one or more pattern match regions in the target image; determining one or more final match regions using the one or more color match color regions and the one or more pattern match regions.

11.   Regarding claim 47, Sonoda et al. teaches of executing pattern recognition using a single color component and then determine whether the pattern is the specified color (column 8, lines 58-65), which reads on determining includes correlating the one or more color match color regions and the one or more pattern match regions to determine the one or more final match regions.

Claim Rejections - 35 USC § 103

12.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13.   Claims 15-18,23,35-37,44 and 45 are rejected under 35 U.S.C. 103(a) as being obvious over Sonoda et al. US 6115494. in view of Wenzel et al. US 6229921 .

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claim 15, Sonoda et al. teaches that the marks (2) constitute pixels, which are used to recognize a pattern based on a single color component signal (column 8, lines 45-50 and 58-65), which reads on performing a pattern matching search of a region surrounding each candidate color match region uses the first plurality of sample pixels.

Sonoda et al. fails to teach of characterizing pattern information of the template image, wherein the characterizing comprises: sampling the template image to determine a first plurality of sample pixels, wherein the first plurality of sample pixels comprises a subset, but not all, of the pixels of the template image.

Wenzel et al. teaches the sampling of the image has been performed to produce a plurality of sample pixels for at least a subset of and preferably for all of the generated sample pixels (column 9, lines 13-25 and lines 31-38), which reads on sampling the template image to determine a first plurality of sample pixels, wherein the first plurality of sample pixels comprises a subset, but not all of the pixels of the template image.

Sonoda et al. could have easily been modified to use the subset sampling of Wenzel et al. This modification would have been obvious to one skilled in the art at the time of the invention to sample the of template image to accurately characterize the image.

Regarding claim 16, Sonoda et al. teaches of dummy marks (4) that are used for pattern matching (column 9, lines 9-20 and 40-45), which reads on performing a pattern matching search of a region surrounding each candidate color match region uses the second plurality of sample pixels.

Sonoda et al. fails to teach of performing a local stability analysis around at least a subset of the first plurality of sample pixels, wherein said performing the local stability analysis determines a second plurality of sample pixels which have a desired degree of stability, wherein the second plurality of sample pixels comprises a subset, but not all, of the first plurality of sample pixels.

Wenzel et al. teaches a method to perform pattern matching using a first set of

sample pixel values which have a first stability (column 10, lines 52-65), which reads on

performing a local stability analysis around at least a subset of the first plurality of

sample pixels.   He also teaches of using a second set of sample pixel values and

performing a second stability neighborhood size, which depends on the degree of

desired preciseness in the pattern matching (column 11, lines 1-25 and column 3, lines

33-45), which reads on performing the local stability analysis determines a second

plurality of sample pixels which have a desired degree of stability, wherein the second

plurality of sample pixels comprises a subset, but not all, of the first plurality of sample

pixels.

Sonoda et al. could have easily been modified to contain the pattern matching of

Wenzel et al.   This modification would have been obvious to one skilled in the art at the

time of the invention to accurately match the color regions with the correct pattern.

Regarding claim 17, Wenzel et al. teaches the local stability analysis operates to

ensure stability of each of the subset of sample pixels to spatial perturbations around

the sample pixel (column 3, lines 35-40 and column 9, lines 33-40), which reads on

wherein said performing the local stability analysis operates to ensure stability of each

of the second plurality of sample pixels to spatial perturbations around the sample pixel.

Regarding claim 18, Wenzel et al. teaches the sample pixel correlates highly with

the template image pixel values in the neighborhood (column 3, lines 40-44 and column

9, lines 42-50), which reads on for each pixel, finding a neighborhood around the

sample pixel where a value of the sample pixel correlates highly with template image pixel values in the neighborhood.

Regarding claim 23, Wenzel et al. teaches that the template image is sampled using a Low Discrepancy sequence (Halton set) which samples on the x and y component planes (column 7, lines 44-65 and column 8, lines 1-26), which reads on said sampling the template image comprises sampling the template image in one or more component planes of the plurality of components.

Regarding claim 35, claim 35 is rejected for the same reasons as claim 15.

Regarding claim 36, claim 36 is rejected for the same reasons as claim 16.

Regarding claim 37, Wenzel et al. teaches of software programs which are executable by a processor or CPU to perform pattern matching using sample pixels (column6, lines 54-67 and column 7, lines 44-65 and column 8, lines 1-26), which reads on wherein each of the pixels in the template image are comprised of a plurality of components; and wherein the processor is operable to sample the template image in one or more component planes of the plurality of components.

14.   Regarding claim 44, Sonoda et al. teaches of an image processing device that implements the processing method (column 10, lines 18-20). He teaches about pattern recognition and using a single color component signal to determine whether the pattern is the specified color and finding the logical product of these two processes (column 8, lines 58-65), which reads on a computer-implemented method for locating regions of a target image that match a template image with respect to color and pattern information: performing a color matching search through the target image in order to find one or

more color match regions, wherein the one or more color match color regions match the

template image with respect to color information. He teaches that by executing

threshold processing in the image signals with respect to this color component signal

and binarizing the image data, we can extract marks (2) and recognize the pattern

(column 8, lines 37-44). He also teaches of executing pattern recognition using a single

color component signal and then determine, whether the pattern is the specified color

(column 8, lines 46-50). Which reads on for each candidate color match region found in

the color matching search, performing a pattern matching search of a proximal region

proximal to the color match region in order to find one or more match regions in the

target image.

15.   Sonoda et al. fails to teach at least one region of the target image comprises an

instance of a rotated template image in the target image. He also fails to teach of

sampling the template image along one or more rotationally invariant paths to produce

one or more sets of sample pixels; performing pattern matching using each of the one

or more sets of sample pixels and the target image to determine one or more locations

of the template image in the target image, wherein said pattern matching detects rotated

versions of the template image in the target image.

16.   Wenzel et al. teaches that the method operates to sample or locate pixel values

in the template image along one or more rotationally invariant paths (column 14, lines

26-33). He also teaches that pattern matching is performed using circular perimeter

sample pixels and the target image. The pattern matching may be performed for each

of the one or more circles located in the template image and this provides information

on the location and rotation of the template image in the target image (column 14, lines 36-55). This reads on at least one region of the target image comprises an instance of a rotated template image in the target image and sampling the template image along one or more rotationally invariant paths to produce one or more sets of sample pixels; performing pattern matching using each of the one or more sets of sample pixels and the target image to determine one or more locations of the template image in the target image, wherein said pattern matching detects rotated versions of the template image in the target image.

Sonoda et al. could have easily been modified to contain the rotating template image of Wenzel et al. This modification would have been obvious to one skilled in the art at the time of the invention to find color information because template images may have various shapes.

Regarding claim 45, Wenzel et al. teaches that the template image along one or more rotationally invariant paths along circular paths (column 14, lines 28-33), which reads on rotationally invariant paths comprise circular paths.

17.   Claims 2,3,27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sonoda et al. US 6115494 in view of Paul et al. US 6229921.

Regarding claim 2, Sonoda et al. teaches about pattern recognition and using a single color component signal to determine whether the pattern is the specified color and finding the logical product of these two processes (column 8, lines 58-65), which

reads on a match region that matches the template image with respect to color and pattern information.

Sonoda et al. fails to teach to of a graphical user interface indicating the location of the match region within the target image.

Paul et al. teaches of a graphical user interface that shows the tracking result on the screen (106) (page 2, paragraph 0019), which reads on a graphical user interface indicating the location of the match region within the target image.

18.   Regarding claim 3, claim 3 is rejected for the same reasons as claim 2.

19.   Regarding claim 27, Sonoda et al. teaches of an image processing device (10) (figure 5), which reads on a system for locating regions of a target image that match a template image with respect to color and pattern information, the system comprising: a processor. Sonoda et al. teaches that the image processing device (10) implements the processing method (column 10, lines 18-20), which reads on a color/pattern matching software. It is inherent in the above recited prior art that a memory medium coupled to the processor, wherein the memory medium stores color/pattern matching software.

Sonoda et al. fails to teach to of a graphical user interface indicating the location of the match region within the target image.

Paul et al. teaches of a graphical user interface that shows the tracking result on the screen (106) (page 2, paragraph 0019), which reads on a graphical user interface indicating the location of the match region within the target image.

20.   Regarding claim 28, claim 28 is rejected for the same reasons as claim 27.

Allowable Subject Matter

21.   Claims 4-13, 19-22,24,29-34,41-43 and 48 are objected to as being dependent

upon a rejected base claim, but would be allowable if rewritten in independent form

including all of the limitations of the base claim and any intervening claims.

Conclusion

1.   Any inquiry concerning this communication should be directed to Michael

Burleson whose telephone number is (703) 305-8683 and fax number is (703) 746-

3006. The examiner can normally be reached Monday thru Friday from 8:00 a.m. –

4:30p.m. If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Kimberly Williams can be reached at (703) 305-4863

Michael Burleson
Patent Examiner
Art Unit 2626

KIMBERLY WILLIAMS
SUPERVISORY PATENT EXAMINER

Mlb
June 1, 2004